Handout 4

FAA Aging Non-Structural Systems Plan

NASDAC Report on Tasks 5B and 5C

Aging Transport Systems
Regulatory Advisory Committee

October 11, 2000

Overview

- Background
- Task 5B: Reporting Formats
- Task 5C: New Wiring Related Data Elements

Background

- FAA drafted plan and set-up advisory committee to address recent accidents involving aging wiring (or other non-structural systems) as a cause

- NASDAC assigned elements of Task 5:

  "Improve reporting of accident/incident and maintenance actions involving wiring systems components (wire, connectors, wire shields, grounds, circuit breakers)"

Task 5B:

"Improve reporting formats of incidents/accidents and maintenance data to make the integration and analysis of data bases more efficient for assessing aging trends and problems."

Analysis

- Effective Integration Requires Data Element Standardization
  - NASDAC Implementing White House Commission Recommendation on Data Standardization
  - broad public, private sector agreement needed
  - make/model standard in coordination; already in use
  - location, time, other elements still planned
  - aviation data registry in development

Task 5B: Analysis (cont.)

- Electronic reporting not mandatory in revised SDR system
  - Currently available for voluntary use
  - Consistent use would ensure total capture of SDR submissions
  - Enhanced consistency of data acquisition would significantly enhance credibility of database

- ATA-proposed Chapter 97; coding changes to SDRs
  - Replaces current subchapter codes with "97" for wiring related reports (e.g., "24XX" would become "2497")
  - Further subchapter detail could be added, but results in 6 digits instead of 4 ("2497XX")
  - SDR system cannot currently handle more than four digits; additional detail of current subchapter codes will be lost

Task 5B: Objectives

1. Standardize data element coding to support cross-database integration and analysis

2. Capture maximum number of records with fewest blank fields

3. Clearly distinguish wiring related records from others

Task 5C:

"Add data to the National Aviation Safety Data Analysis Center (NASDAC) databases to better address aging systems"

Analysis

- Two-Fold Approach Taken to Identification of Needed New Data:
  - Assess requirements for wiring related data analysis
  - Assess adequacy of existing data sets to support analysis

Task 5C: Analysis

- Non-Intrusive Inspections Report
  - Key source of data elements of interest
    - Very few fleet-wide issues identified
    - Data available for collection (visually apparent)
    - Data relevant to potential aging systems wiring issues
- Airline Interviews
  - Consider wiring issues safety related, but already addressed or addressing; no need for additional data
  - Airline data
    - Reliability-oriented; more in-depth, comprehensive, and considered more credible than SDRs; SDRs viewed as unreliable, not useful
    - Data potentially useful for safety analysis, but not easily queried; mainly text

Task 5C: Analysis

- Manufacturer Interviews
  - Consider wiring issues safety related, but already addressed or addressing; no need for additional data
  - Manufacturer Data:
    - more comprehensive, credible than SDRs
    - mainly oriented toward subsystem, component problems
    - useful for safety analysis, but also difficult to query
- No Interview with Mechanics
  - Extensive effort made to connect

Task 5C: Analysis

- Service Difficulty Reporting (SDR) System
  - Wiring issues addressed in freeform narrative only
  - Major data quality issues addressed in recent revision to SDR system (September 15, 2000)
    - Will enhance future data collection quality
    - Will significantly expand reporting requirements
    - Future safety analysis may be possible including trends and pattern identification
    - Issues with previously collected data remain

Task 5C: Objectives

1. Build an integrated Aging Systems Database to analyze wiring related data
   a. Develop baseline understanding of aging wiring performance
   b. Identify patterns and associations that appear over time that differ from baseline

2. Identify additional, wiring-related data elements for collection

Next Steps

Work with Flight Standards, Aircraft Certification, other government organizations, and industry to

- Reach consensus on key data elements
- Develop most effective vehicle, and implementation approach, for data collection
- Implement data collection system
- Build Aging Systems Database
- Begin analysis

Questions?